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ABSTRACT

Four papers on university libraries and other general research libraries were presented at the 1986 International Federation of Library Associations (IFLA) conference. "Activities of the National Centers for Overseas Periodicals" (Keinosuke Imamura, Japan) describes the functions of the eight Japanese university libraries designated as National Centers and their role in the Japanese science information system. In "Japanese University Libraries in a National Network," Tamiko Matsumura of Japan discusses interlibrary cooperation, the provision of photocopy service in interlending, the provision of reading service to external users, and the government's role and the science information system. Statistics on university libraries are presented in six tables. "Union List of Periodicals (ULP) Database and Science Information System (SIS) for the Academic Researchers of Japan" (Masamitsu Negishi, Japan) considers the ULP as a function of the SIS, problem areas in library automation, periodicals systems and the ULP, and system use fees. The text is supplemented with two figures. Finally, in "Scientific Journals and Electronic Publishing," Ulrich Wattenberg of Japan briefly considers the future of electronically distributed scientific journals. (KM)

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IFLA

General Conference

General Research Libraries Division

Section: University Libraries
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Activities of the National Centers for Overseas Periodicals

by

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KEYWORD(S):

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Activities of the National Centers for Overseas Periodicals in Japan

1. Background

Science information has increased rapidly with the recent remarkable development of scientific researches. In Japan, we have experienced a high enrollment rate at the secondary and higher education, and large educational investments from the government and private sectors since 1960's. The university increased from 260(1960) to 389(1971) by the setup of 129 more universities for ten years. In that decade, demands for science information swiftly increased because of the innovative trend in technology and greater investments in science. Consequently, overseas periodicals by purchase also increased by 51.7 percent from 154,449 (1970) to 234,439 (1977) in the Japanese universities.

But the stable purchase of scientific publications from abroad became gradually hard to achieve by the effect of the violent economic fluctuation around the world after 1960's. Working expenditures were pressed by the increase of current expenditures owing to the price hike. So, the percentage of book expenses in the total expenses of the universities went down from 2.1 (1970) to 1.8 (1977) and more expenses for library materials were hardly possible in spite of stronger demands for the scientific literatures.

Great improvements were made on the university library system in the reform of educational system after war. As a result of it, the library

system was established and interlibrary cooperation was brought up. In fact, however, selecting the scientific periodicals was mostly entrusted to researchers and was lacking in the adjustment among other organizations and regions or by the national concerns.

If we left it there, it was predictable that the stable acquisition of literatures would become more and more difficult. Therefore, the Ministry of Education prepared the budget for overseas periodicals in natural sciences as 143,550,000 yen in 1977 in order to facilitate the university library activities. The government made it an aim of the budget to cooperatively use overseas periodicals inside and outside the universities and also requested the improvement of library services.

2. Foundation of the National Centers for Overseas Periodicals

The expense for overseas periodicals is divided into 3 levels. Level-1 is for the university use, level-2 for the regional use and level-3 for the national use. Level-1 distribution is to most national universities except some with less advanced library organizations. Level-2 is to the Tohoku University, Kyushu University and Kagoshima University. Level-3 is to the Osaka University, University of Tokyo and Tokyo Institute of Technology. Among these, the libraries on level-2 and -3 were called Key Libraries for Overseas Periodicals and then also called National Centers for Overseas Periodicals. They are cited as just National Centers after this. Now we have 8 National Centers including the Hitotsubashi University designated in 1985 and Kobe University in 1986. These 8 National Centers were all given their own acquisition fields such as : medical and biological

sciences (Osaka University, Nakanoshima Library; Tohoku University, Medical Library; Kyushu University, Medical Library), agriculture (University of Tokyo, Faculty of Agriculture Library; Kagoshima University Library), science and engineering (Tokyo Institute of Technology Library), social sciences and arts and humanities (Hitotsubashi University Library; Kobe University Library).

3. Management

The National Centers are all formed as a mere function in the main or branch libraries of the national universities. There is no independent organization or staff but they are relatively larger and distinctive special libraries in each subject field. Each library has responsibility for its management but basic policies are determined by the Ministry of Education and Council on the Naional Centers for Overseas Pericdicals which is supposed to maintain a managerial integration and consistency among 8 National Centers. The National Centers are provided with the budgetary aid (e.g. 311 million yen for 11,104 periodical titles in 1985) and with personnel supports (e.g. 14 staffs by 1985) from the government. It is impossible to know the exact quantity of their works as National Center because such works are incorporated into their own proper ones. However, it is clear that their works are spreading and getting harder on account of much more periodical titles and more frequent use.

4. Periodical Selection

The periodical selection policy by the Ministry of Education was as follows; (1) It shall be a systematic and comprehensive acquisition. (2) It shall be scientific foreign periodicals (in medical and biological sciences, science and engineering, and agriculture) not held in Japan. (3) It shall be primary periodicals indexed or abstracted in the main secondary publications for each subject field. Subject fields were expanded as 2 more National Centers were organized for social sciences and arts and humanities after 1985. The specific evaluation and selection of periodicals depend on the Naional Centers' separate policies, but duplicative purchases especially in the marginal fields are adjusted among the National Centers. As a rule, there is no duplication. The number of periodicals in 1977 was 1,019 (630 for medical and biological sciences, 267 for science and engineering, 122 for agriculture). In 1985, it was 11,104 (5,024, 3,537, 1,518, and 1,110 for arts and humanities respectively). Consequently, we must point out the following problems : the periodicals in natural sciences are so comprehensively collected but those in social sciences and, arts and humanites are not. Most periodicals selected are published in Europe and U.S. and many of them are very difficult to obtain.

5. Utilization

The periodicals at the National Centers might be read by all resesrchers, even through the interlibrary loan system. In order to locate periodicals easily, the Council on the National Centers for Overseas Periodicals has been publishing and distributing the Catalogue of Current Periodicals

Acquired by the National Centers for Overseas Periodicals in Natural Sciences since 1977. There is the statistical survey at the University of Tokyo, Faculty of Agriculture Library which shows that the percentage of requests for the National Centers' holdings in the total number of interlibrary loan requests has been going up, like 27 percent in 1982, 40 percent in 1983 and 44 percent in 1984. At the same time, the other library materials have come to be more frequently used by readers outside the university.

The total of photocopying requests to 6 National Centers in natural sciences increased by 90.8 percent from 35,189 in 1978 to 67,164 in 1984. Subject-oriented statistics indicates that in 1984, the numbers of requests are 48,095 (up 71.6 percent) in medical and biological Sciences, 13,476 (up 20 percent) in science and engineering and 5,593 (up 8.4 percent) in agriculture. The use rate in the medical sciences is remarkably high. The total number of interlibrary loans among the Japanese university libraries is 578,179 in 1977 (i.e. accepted : 308,004, requested : 224,337, others : 45,838) and 1,026,337 in 1983 (i.e. accepted : 558,032, requested : 402,474, others : 65,831). We can find a 73.8 percent increase between 1977 and 1983. 12 percent of the whole requests were met by the National Centers.

6. Relation to the Science Information System

In Japan, there was a report from the Science Council in 1980 titled "Science information system in future" about how to cope with the new

age of information network in which the government policy was clarified. The report states that it is necessary to take proper and effective steps on the science information resources in Japan because they are not enough as compared with the total amount circulated throughout the world. And the basic idea is not that one unified national center for primary information should be newly built, but that the existing university libraries should be reorganized with their functions reinforced to establish a nationwide network, where the best use of resources can be made.

The supply of primary information is considered as important as its acquisition. The science information system is constructed on the principle of reciprocal and mutual aids of network constituent members. Therefore, each library must wrestle positively with the improvement and promotion of interlibrary loan activities of materials. Besides, it is a problem to be solved that the systematic preservation of materials in a nationwide aspect will be required. The university libraries are playing a significant role in the collection and supply of primary information, so it is necessary to improve various present methods and systems so that their functions can be expanded and their smooth activities can be acquired.

7. Future Problems

The Japanese university libraries are still sticking to the traditional methods and not positively open to the society. On the contrary, the National Centers have a purpose of outward services and then take

the initiative in extending the possibility of university libraries in the Information Age. Good results were obtained more than expected after they were founded in 1977. But, there are many things to be reconsidered about the contents of the support in response to evergrowing demands, e.g. expansion of acquisition fields, development of the preservation system and improvement of literature supply services connected with the science information network system.

The science information resources are unevenly distributed to the university libraries in Japan, but we can recognize a variety of scientific researches done in each field of the society. So, the National Centers are expected to contribute to not only the universities but also the society. The National Centers started as a leading organization for the Japanese science information system and now they are giving actual results. Importantly, they should contribute to the domestic research activities and also expand their information supply services all over the world.

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IFLA GENERAL CONFERENCE, TOKYO

Division: General Research Libraries

Section: University Libraries and other General Research Libraries

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Japanese University Libraries in a National Network

by

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KEYWORD(S):

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Cooperation

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1. OVERVIEW OF UNIVERSITY LIBRARIES

Higher education in Japan is characterised by the proliferation of institutions; 460 universities (95 national, 34 public and 331 private) with 1,848,697 students and 112,250 teaching staff in 1985[1]. So far as libraries are concerned, there were 455 main university libraries with 167 branch and 367 departmental/seminar libraries (Table 1). They form professional associations according to their institutional affiliations; i.e., Kokuritsu Daigaku Toshokan Kyōgikai (Council on National University Libraries), Kōritsu Daigaku Toshokan Kyōgikai (Public University Library Association) and Shiritsu Daigaku Toshokan Kyōgikai (Private University Library Association) in addition to those in specific fields such as medical, agricultural and phamaceutical sciences.

The gross total of book holdings is 132 million volumes, of which Japanese language materials constitute 64.3% on average Table 2). The aggregate serial titles is 1.8 million; 36.0% being non-Japanese serials (Table 3). The annual acquisition of books amounts to 6.3 million volumes and the average number of books added per university is 14,000 volumes[2]. The average annual purchase of books and current serials during 1979-83 are shown respectively in Tables 4 and 5.

The expenditure on library materials reached 4,8744 million yen; i.e., 48.0% of total library expenditure and 2.0% of entire university expenditure in 1983[3]. Table 6 illustrates the breakdown of expenditure on library materials by types of material and university. The number of books per student varies considerably; 129 volumes in national university library and 45 volumes in private university library[4].

2. INTERLIBRARY COOPERATION AND THE COMMITTEE ON NATIONAL, PUBLIC AND PRIVATE UNIVERSITY LIBRARIES COOPERATION

The need for and importance of interlibrary cooperation has long been discussed and documented elsewhere[5)-8)], and a number of cooperative activities have been observed at various levels in various fields. Just to mention a few, medical libraries have been extensively active in interlibrary lending in biomedical fields; Tokyo Nishichiku Daigaku Toshokan Sōgo-kyōryoku Renrakukai (Tokyo West Region University Libraries Cooperation Liaison) and the Kanagawa-ken Daigaku Toshokan Kyōryoku Iinkai (Interlibrary Cooperation Council of University Libraries in Kanagawa Prefecture) are both regional cooperatives consisting of different types of university libraries; while cooperation between Niigata University Library and Niigata Prefectural Library Illustrates rather a unique cooperation between University and public libraries.

Nontheless different organisational, and historical backgrounds as well as the primarily vertical structure of the Japanese society provide a major bottleneck for more extensive and effective interlibrary cooperation. This was reflected in that no formal channel for communication existed among national, public and private university libraries.

In this respect the establishment of the Kokkōshiritsu Daigaku Toshokan Kyōryoku Iinkai (Committee on National, Public and Private University Libraries Cooperation) in 1979 made a significant breakthrough in the development of library cooperation. This Committee was set up with a view to provide an official forum for discussion and exchange of views on various problems arising from different institutional environments. It is

composed of eight university libraries; three national, two public and three private, each representing respective associations. It publishes a bimonthly newsletter and a quarterly JOURNAL OF COLLEGE AND UNIVERSITY LIBRARIES, which was originally an organ of the Council on National University Libraries but was later joined by the public university libraries in 1976 and further by the private university libraries in 1985, and is now proving itself a real cooperative venture of the entire academic library community.

3. PROVISION OF PHOTOCOPY SERVICE IN INTERLENDING

The supply of photocopy has always been predominant in interlending; the 1984 statistics indicates that it was 27.0% more than lending of original documents[9]. Nonetheless a number of problems were associated with the provision of photocopy service, most significantly varying charges for photoduplication and the pre-payment of charges required by national university libraries due to their accounting regulations. In 1979, after some years of study, a new scheme was introduced by the Council on National University Libraries to its member libraries whereby a request form and charges were standardised and the Photoduplication Data Processing Centre was established to centrally computer-process all records on requests and charges for individual libraries. In this scheme, which was a totally new concept, a library sends a request for a photocopy using a standardised form; the receiving library sends a photocopy back to the requesting library and at the same time sends an invoice to the Photoduplication Data Processing Centre located in the Ōsaka University Library; the Centre processes

invoices for individual libraries and sends records twice a year; accounts are settled simply by transferring charges between the two libraries concerned.

In view of the significant improvement in the transactions of photocopy supply achieved by means of this scheme, the Committee on National, Public and Private University Libraries Cooperation set up a Subcommittee on Photoduplication in 1980 to study the feasibility for introducing a similar scheme to which all university libraries, regardless of their institutional affiliations, would be able to participate to form a nation-wide interlending network. A report of the Subcommittee was published in 1981[10], with the recommendations to standardise a request form and unify photoduplication charge and to establish a data processing centre which handles records and charges centrally for all participating libraries. Following these recommendations drafts for an agreement on photocopy provision among national, public and private university libraries, a transaction manual and a director of participating libraries were prepared and approved by the Cooperation Committee in May 1985. The drafts are currently under consideration by the three member associations of the Committee. Once approved and in effect, resource sharing will be significantly promoted in terms of interlending network.

4. PROVISION OF READING SERVICE TO EXTERNAL USERS

The acute need for sharing library resources was stressed in a report on the investigation into the improvement of university library services organised by the Ministry of Education in 1973[11]. The Report made a special reference to the need for

making library materials available for reference to readers from other universities, and further indicated a possible use of a common admission form as a means for facilitating the provision of such a library service.

Meanwhile in the annual conference of the Council on National University Libraries in 1975, a study group was set up to identify a possible area for interlibrary cooperation. In view of the increasing need for sharing resources provided through such schemes as "procurement of a large collection of books in human and social sciences" and "centres for non-Japanese journals in science and technology, agricultural and biomedical sciences", a survey was conducted by the Council in 1980 on the state of the provision of library services to external readers. The results of the survey[12], which achieved a 100 percent response, indicated that most libraries make their holdings available for reference to readers from other universities, and in some cases those from institutions other than the university concerned. Certain documents including a letter of request from the library director are required for admission in 94.0% of main libraries, 80.0% of branch libraries and 60.0% of departmental/seminar libraries. A letter of request from the library director, among others, ranks highest in the required documents, followed by an identification card. The use of materials for reference is dominant in the services provided (90.0%-98.0%) in contrast to lending of materials (18.0%-37.0%). Some notable comments made in the questionnaire included: a letter of request is superficial and should be discontinued; a standardised procedure for admission of external users should be established; use of a common admission card is desirable; provision of library

services for external readers should be institutionalised.

In response to such interest and views, further studies were made to work out a standardised scheme for all national university libraries, and a new system using a common admission form was initiated in January 1982. Readers in this scheme are defined as university staff, postgraduate students and those with equivalent qualifications acknowledged by library directors. The use of library resources is primarily for reference in a library including the use of photocopy facility. The scheme is nation-wide in scope so far as national university libraries are concerned, nontheless it should be expanded to cover public and private university libraries to make it a more comprehensive and effective resource-sharing network.

The problems associated with free access to library materials by external readers include, among others, abuse of reading room facilities; use of a material held by the reader's own library; a third party being sent to obtain photocopy of a material.

In addition to the services provided through this scheme, certain university libraries make special provision of service on mutual agreement; e.g., the University of Tsukuba Library provides the University of Library and Information Science Library with 30 admission cards, which entitle holders to the same library services as provided for the staff and students of the Tsukuba University. These admission cards are now issued also to the National Research Institute of High Energy which is located in the same vicinity.

5. GOVERNMENT'S ROLE AND THE SCIENCE INFORMATION SYSTEM

The increasing support of the government for university libraries is notable during the last decade; for example, a budget was allocated to individual libraries for the purchase of non-Japanese journals in science and technology on the condition that they keep them under the control of the library (since 1977); establishment of the centres for non-Japanese journals in a number of subject fields (since 1977); a budget for procurement of a large collection of books in the humanities and social sciences. But most notably the proposal of a science information system plan in 1980 and the subsequent establishment of the Centre for Bibliographic Information in Tokyo University in 1983, which is now the Science Information Centre.

The Science Information System (SIS) was conceived in the Report of the Science Council in 1973 [13] and proposed in the Report of the Subcommittee on Science Information of the Council in 1980 [14]. It is a resource-sharing interuniversity network whereby all existing library and information systems and services together with computer centres in universities and research facilities are linked to form a nation-wide network. The major functions and services of the system cover 1) secondary information database searching; 2) library cataloguing support; 3) interlibrary lending and document delivery; 4) production of local databases; and 5) education and training of library and information specialists as well as users.

Within the framework of this national network, university libraries are expected to play important roles as interface for the system and users as well as resource centres for research

and instructional materials. In fact, most of the existing cooperative activities of university libraries are now under the umbrella of the SIS. For instance, union catalogues for serials, which have been compiled since 1953, were made into machine-readable form and are maintained at the Science Information Centre, providing valuable vehicles for electronic interlending. Also an electronic mail system of the SIS is expected to serve as a proposed Data Processing Centre for photocopy provision among national, public and private university libraries in interlending network.

Another important activity of the SIS is online cataloguing support for libraries. With Marc databases loaded on the computer of the Centre, the Cataloguing System provides university libraries with support for cataloguing both Japanese and foreign materials. Currently sixteen university libraries are linked with the Centre; nine national and three private university libraries, and four national university libraries are connected with the Centre via the computer centres of respective universities. In the future more libraries are expected to participate in the system.

The recently published report of the Rinji Kyōiku Shingikai (Council on Educational Reform) [15] made a specific reference to the Science Information System, emphasising the need for prompt development of a national information network to support educational and research activities in the academic community.

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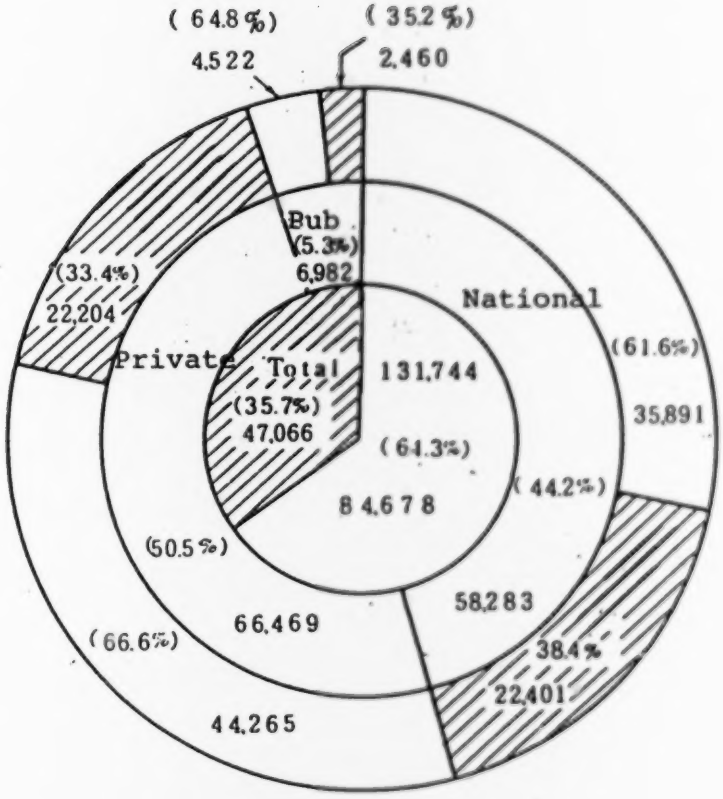
Table 1: General Statistics on University Libraries

Library / University	Main	Branch	Dept/ Seminar	Total
-National Univ	93 (78)	75 (87)	187 (264)	355 (429)
Public Univ	34 (32)	6 (8)	18 (16)	58 (56)
Private Univ	328 (295)	86 (88)	162 (193)	576 (576)
Total	455 (405)	167 (183)	367 (473)	989 (1,061)

Figures in ( ) indicate 1974 data

Source: Library Statistics of Colleges and Universities 1984, p. 35.

Table 2: Library Holdings: Books



Unit : Thousand Vols

Japanese Foreign

Source: Library Statistics of Colleges and Universities 1984, p. 14

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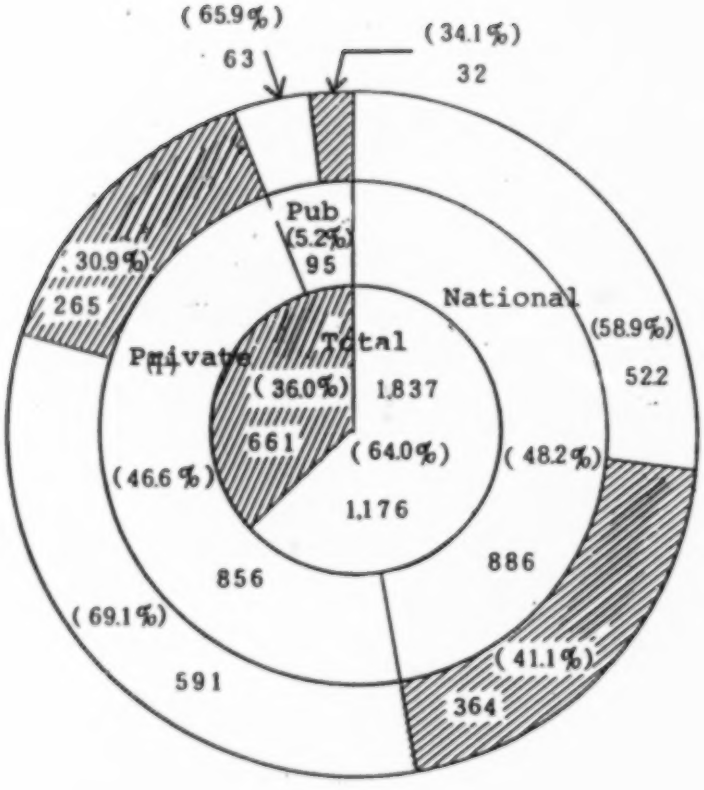
Table 3: Library Holdings: Journals

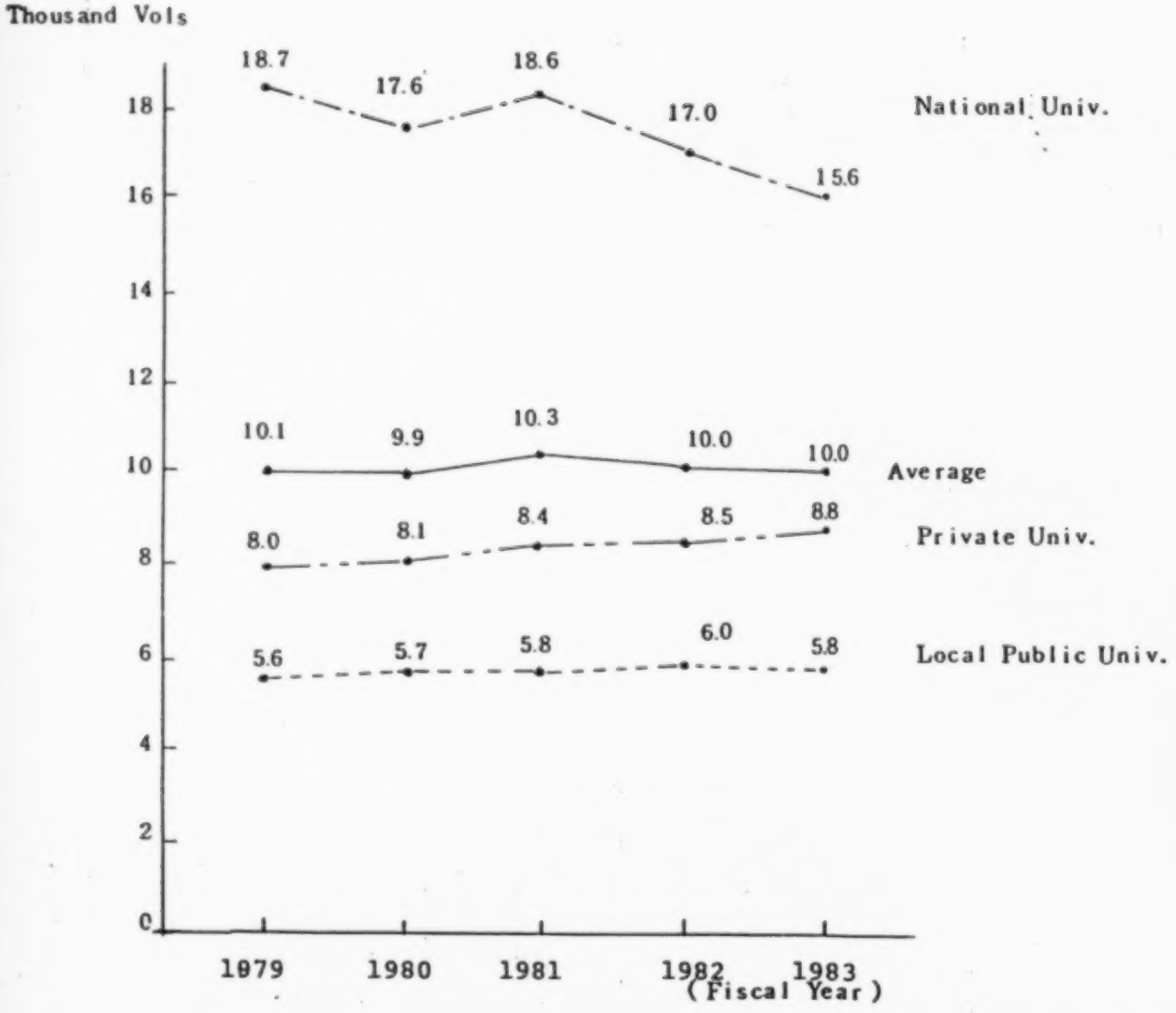


Unit Thousand Titles.

Japanese Foreign

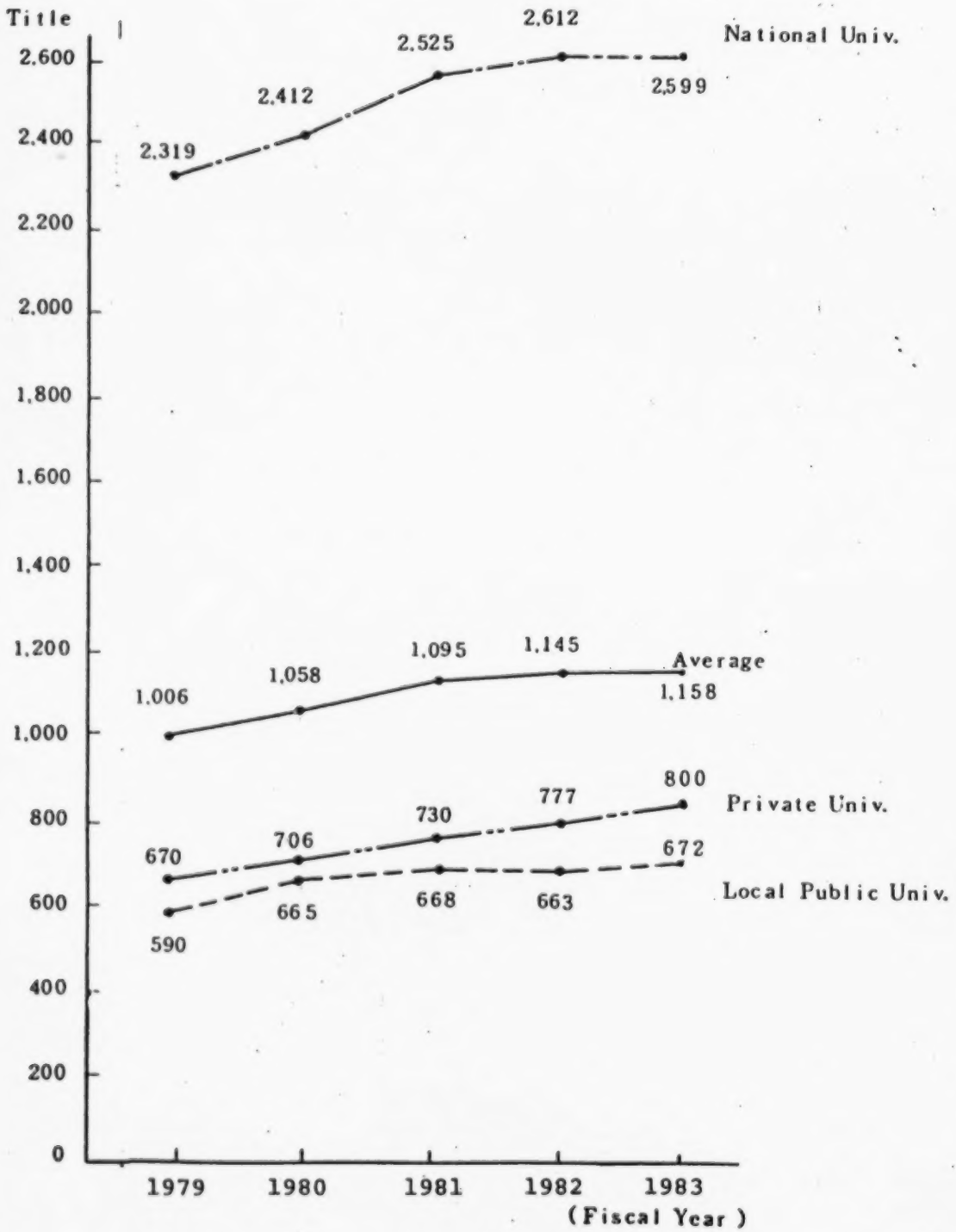
Source: Library Statistics of Colleges and Universities 1984, p. 15

Table 4: Average Annual Purchase of Books During 1979-83



Source: Library Statistics of Colleges and Universities 1984, p. 16

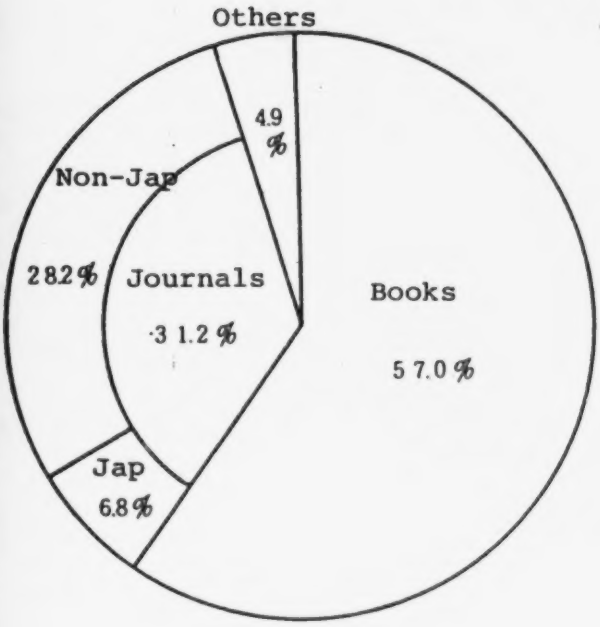
Table 5: Average Annual Purchase of Serials During 1979-83



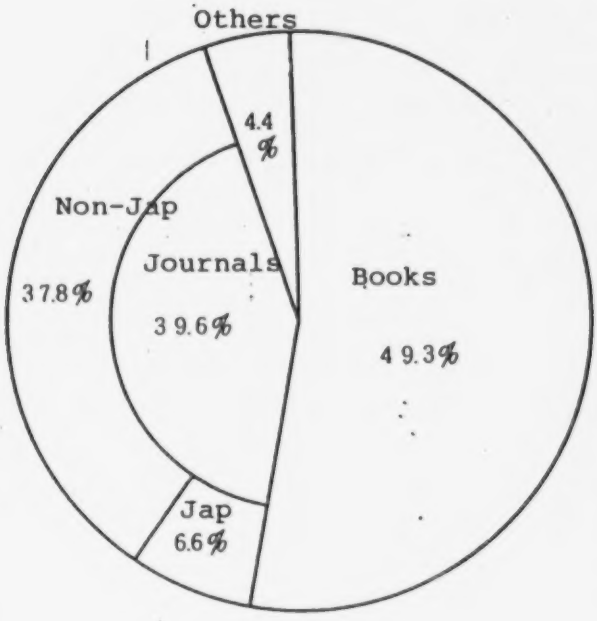
Source: Library Statistics of Colleges and Universities 1984, p. 18

1039

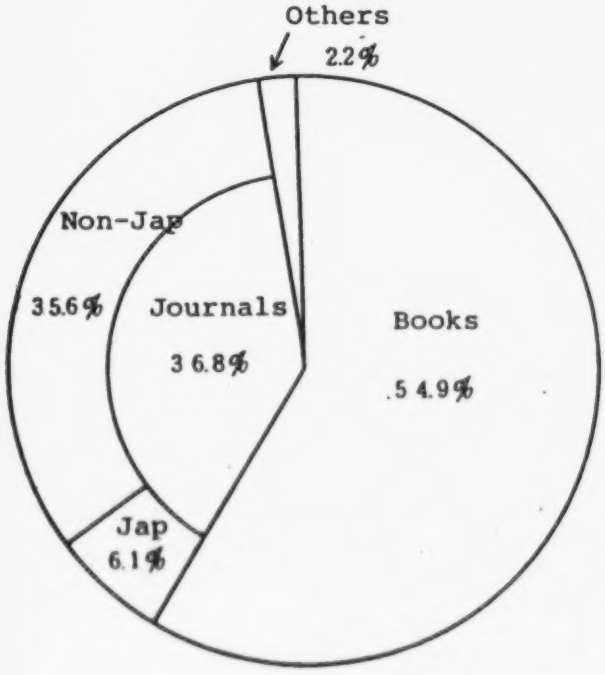
Table 6: Expenditure on Library Materials



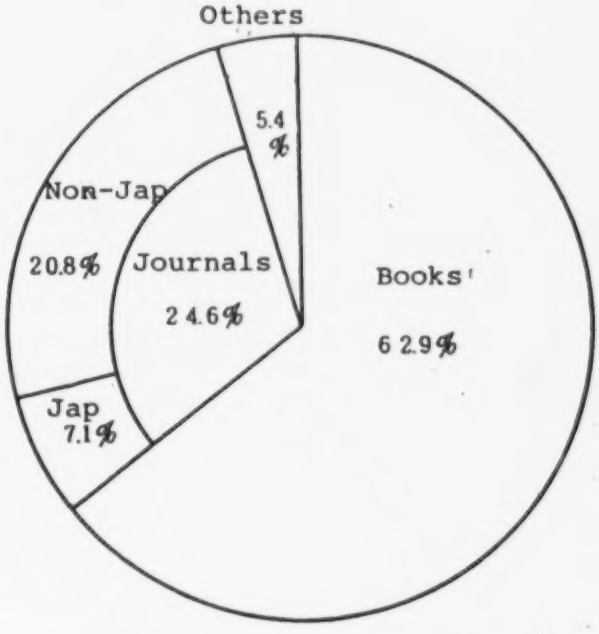
Total



National Univ.



Public Univ.



Private Univ.

Source: Library Statistics of Colleges and Universities 1984, p. 20

IFLA GENERAL CONFERENCE, TOKYO

1986

Division: General Research Libraries

Section: University Libraries and other General Research Libraries

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Union List of Periodicals (ULP) Database and Science Information System for the Academic Researchers of Japan

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KEYWORD(S):

Union list of periodicals
Bibliographic utility
IR system

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Union List of Periodicals (ULP) Database and Science Information System for the Academic Researchers of Japan.

Masamitsu NEGISHI

National Center for Science Information System, Japan.

1. Science Information System and ULP database

Science Information System (SIS) is a large scale information system dedicated to all of the academic researchers of the country, based on the recommendation made by the Academic Council of Japan in 1980 [1]. In the recommendation, SIS was planned with the following four functions:

(1) Promotion of systematic and comprehensive collection of primary information in the forms of books, dissertations, journals and proceedings.

(2) Development and spread of utilization of online information retrieval systems for secondary information in index and abstract databases.

(3) Provision of an inter-university union catalog system to centralize location data of material held at university libraries, and

(4) Construction of databases which reflect scientific activities in the country, useful for both domestic and foreign researchers.

Center for Bibliographic Information, University of Tokyo (CBI), established under the name of Research Center for Library and Information Science (RCLIS) in 1976, had been conducting the project of compilation of Union List of Periodicals (ULP) database [2]. In the project, several versions of ULP were compiled and made available to libraries and researchers throughout Japan (Table 1). Various forms of products were derived from the database such as specialized versions for each library, online retrieval service at the

inter-university computer center of Tokyo University, and publication of book catalogs. ULP database is considered to fulfill a substantial part of the third function of SIS as stated above. The function would completely be realized when an online shared cataloging system including monograph cataloging would be developed and utilized by all the university libraries.

In 1983 RCLIS was reorganized to CBI with an expanded task of development of an online shared cataloging system (OSCS). A large computer system was installed in the center and extensive system development was conducted for two years. In April 1985, OSCS service was opened with Tokyo Institute of Technology Library as the first user. The system incorporates Japan Marc, LC Marc (books and serials), etc. as the referral files which are referenced and copied in the cataloging process, and ULP database as the initial version of union catalog database in the system, consisting of bibliographic data on 130,000 titles and 1.6 million holdings data for them at 630 academic institutions.

CBI was reorganized again in 1986 to National Center for Science Information

Versions of ULP database	Date of Survey	No. of Titles	No. of Holdings	No. of Participating Institutions	Publication of Book Catalog	PRODUCTS AND SERVICES: Provision of Customarized Versions	PRODUCTS AND SERVICES: Online Retrieval System	Online Shared Cataloging System
ULP in European Languages								
1982 Supplement	Aug 1980	8100	75000	489	Jun 1982 1383pp	Versions provided for universities to be mainly used for publishing in-house catalogs. 152 univ. utilized the service.	TOOL-ULP (Tokyo univ On-Line ULP) system, open to all the researchers since July 1982.	Loaded as the initial database for serials in OSCS.
Humanities & Social Sci.	Aug 1978	36881	175000	355	Aug 1980 2037pp			
Science & Technology	Apr 1978	38600	373000	321	Mar 1979 2518pp			
ULP in Japanese 1985 Edition	May 1983	40237	979500	623	Mar 1986 3920pp		TOOL-ULP type IR system under developent.	
New Version of ULP in European Languages	Oct 1985	100000 (estimated)	800000	650	Scheduled to complete by March 1988.			To be included in OSCS.

Table 1. Versions of Union List of Periodicals (ULP) database and their characteristics.

System (NCSIS), an inter-university research and development facility, which promotes the construction of SIS as the central institution covering all the functions proposed in the recommendation. The major concern for the new center is the fulfillment of the second and fourth role raised in the proposal, i.e. online information retrieval service and original database construction, which are oriented mainly to end users who are researchers.

2. Problem areas in library automation.

A study on automation in university libraries was conducted at CBI in 1984 and 1985 to clarify the conditions affecting the development of automation at individual libraries, the results of which were expected to be used for smooth spread of SIS over the libraries. Four hundred fifty five universities in the country, of which 93 are national, 34 municipal and 328 private, may have different orientations to OSCS according to their circumstances: financial, managerial, organizational, etc. The study was undertaken with this basic interest.

A survey of all university libraries by questionnaire was carried out to obtain well organized data concerning their attitudes towards OSCS. On the other hand, investigations through interviews were conducted for 29 selected libraries, with the view to obtain detailed and concrete data not available through the questionnaire.

Four critical areas were pointed out through the interviews: organization, management, approach to computerization and current technical practice. The organizational problem area relates to the type of university: national or private, status of the library and its director in the university, etc. Managerial problems arise in staffing automated services, cost-effectiveness evaluation of library automation, etc. In the process of computerization, selection of services to which computers are applied or how to provide sufficient computer resources are found to be crucial problems. Technical

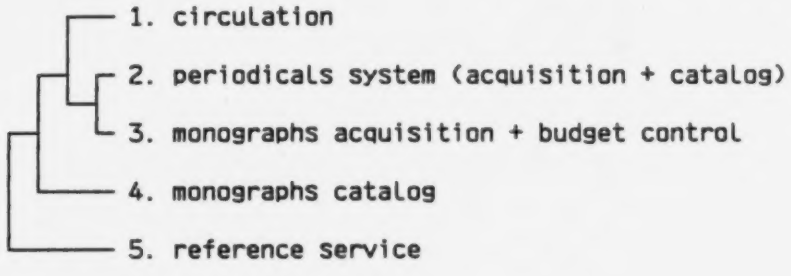
practice at libraries including cataloging rules adopted, diversity of material languages and attitude of personnel towards changes in the practice is also affecting the development of automation in libraries.

3. Peridicals systems and ULP

In the survey, circulation is found to be the most popular service to be automated and the periodicals system to control acquisition of journals comes as the second place.

A multi-variate analysis on the patterns of combination of automated services at each library shows that in many cases periodicals aquisition systems are designed and operated with close relation to computerized maintenance of periodicals catalog (Figure 1). The systems for monographs are constructed separately from the ones for periodicals.

From the analysis, we may assume a typical process of library automation as follows, where the tree diagram shows the way of development of applying computers to library services.


1. circulation
2. periodicals system (acquisition + catalog)
3. monographs acquisition + budget control
4. monographs catalog
5. reference service

ULP database as the consolidation of those individual catalogs maintained in each library has two major functions: a tool for inter-library copy service by providing locations of journals and a reference of bibliographic data for journals. So far, nationwide survey for ULP has been carried out about every three years. This is based on the period required to complete the compilation

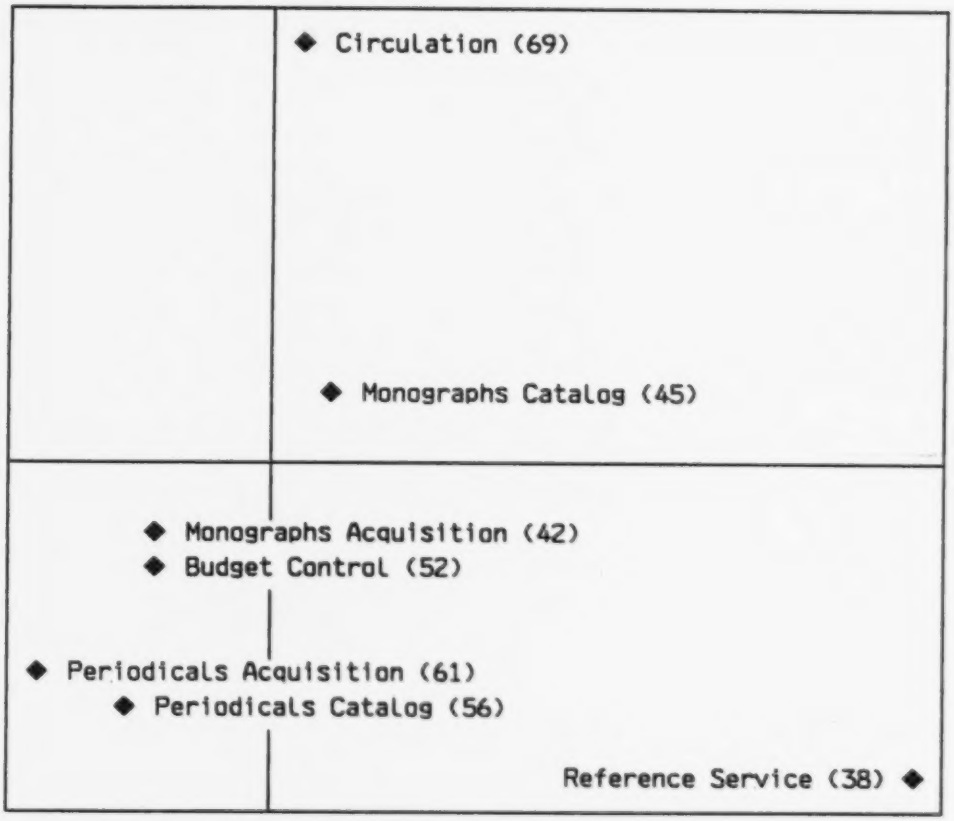


Figure 1. Relationships between automated library services, obtained by a multi-variate analysis on the responses for questionnare on application of computers to services. The numbers of libraries carrying the automated service are given in parentheses.

of each version. This also means that the data are made available three years later. OSCS is expected to eliminate this time lag as librarians can input up-to-date holdings data to ULP database directly from their online terminals. This will improve the former function of ULP and contribute to the efficiency of researchers' activities.

For the latter function of ULP mentioned above, authentication service on bibliographic data at the national center plays an important role to provide correct and precise data. In ULP one of the most difficult problems is the control of title change data. Statistics on ULP show that 35 % of titles have changed their title in the course of issuing. The author developed an efficient

management method for title change data, in which the data are maintained in a specialized database in the form of binary relations. An easy-to-understand presentation of title changes, called "Title Change Map", is automatically generated by computer from the database, which proved to be very useful for both the center staff checking data contents and the users of ULP tracing title change history (Figure 2). Other tools for data authentication are under development at the center in order to keep ULP database in high quality.

4. Charging scheme and private VAN for SIS.

In OSCS one of the most delicate problems is the method of charging fees to libraries on utilization of the system. The member libraries of the system unlike the users of information retrieval systems are not merely users of the catalog databases but also the contributors of new data to the databases. The charging scheme should be carefully designed to encourage data inputs without stimulating abuses. It seems insufficient that new bibliographic data can be inputted free of charge. A conceptual framework of offsetting fees for copy cataloging by original data inputs is under investigation with a view to determine a suitable charging scheme.

In order to minimize charges for using communication lines, the center constructs a private value-added network (VAN) named Science Information VAN to network major areas in Japan, connecting university computer centers and libraries. The network is planned to incorporate various kinds of communications as follows: data transmission in OSCS and information retrieval systems, electronic mailing between reasearchers, facsimile transmission of documents in inter-library lending service. As the basic cost to operate the network is paid from the budget of NCSIS, libraries and researchers can utilize it at a small expense. The network, as the infrastructure of the academic community, is expected to promote scientific activities in the country.

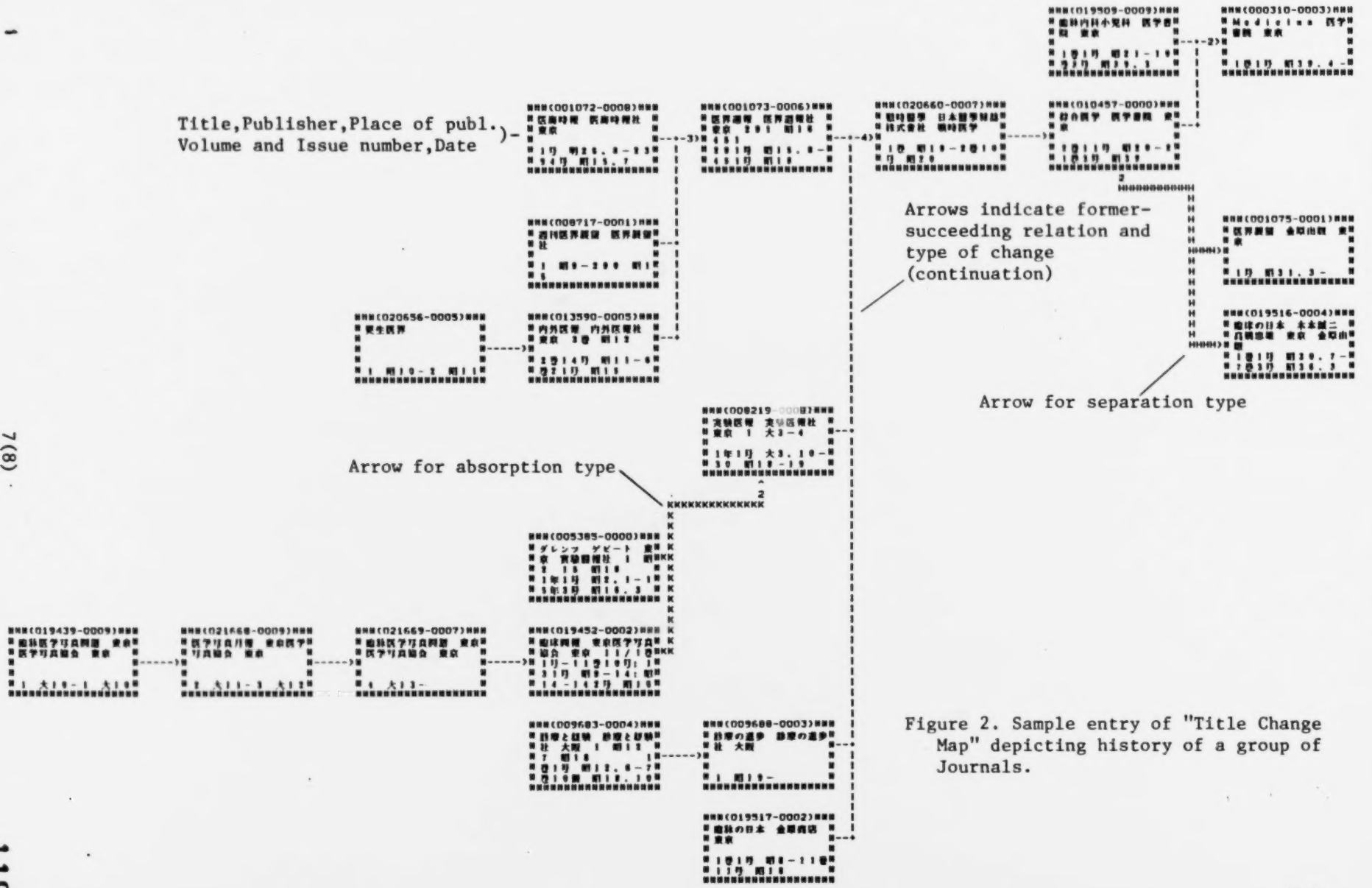

Title,Publisher,Place of publ.
Volume and Issue number,Date
Arrows indicate former-succeeding relation and type of change (continuation)
Arrow for separation type
Arrow for absorption type

Figure 2. Sample entry of "Title Change Map" depicting history of a group of Journals.

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Scientific Journals and Electronic Publishing

by

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KEYWORD(S):
Periodicals
Academic Libraries
Electronic Publishing

For internal use only: SI
To be brought to meeting no:
166
Remarks:
to be presented orally ☒
for distribution only ☐

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Publishing is becoming easier, faster and cheaper by means of dataprocessing and telecommunication. In addition, electronically stored information is ready for further processing and distribution out of the conventional business channels. The whole publication process can be performed without use of paper. Problems of standardization of information representation in the publishing process have been taken up in several projects conducted in the Federal Republic of Germany. - Whether or not information can be distributed electronically to the enduser has to be discussed case by case. The failure of acceptance of videotext all over the world should be taken serious, not just as a temporary setback of the new media.

Scientific journals typically contain long demanding texts, which may include formulars, graphics and fotos, often in colour. It is hard to imagine that every single user will produce his own journals from computer outputs and telefax copies; he will prefer to be served in the traditional way. Even in the US with their advanced information-oriented infrastructure the number of electronically published journals is still small. - To speed up overseas delivery one could think of decentralized printing. But that has a worldwide standard on information to be printed as condition.

Electronically distributed scientific journals will continue to appear, but rather in addition to traditional publication forms than replacing them. On the other side electronic published information will serve naturally as source for copies, especially if its organizationally connected to the publishing process, e.g. via CD-ROM or via fulltext-databases on host computer. For the time being however document delivery systems will be indepently organized by scanning the printed information, as it is tested for example the Tokyo University.